

MICHIGAN FARMER

AND STATE JOURNAL OF AGRICULTURE.

GIBBONS BROTHERS, Publishers. DETROIT, SATURDAY, MARCH 8, 1890---WITH HOUSEHOLD SUPPLEMENT. PRICE, \$1 PER YEAR. VOLUME XXI. "PRACTICE WITH THEORY AND SCIENCE!" NUMBER 10

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For the Michigan Farmer. DEEP VS. SHALLOW CULTIVATION OF CORN.

BY B. HATHAWAY.

The farmers of Michigan have recently had a pretty expensive object lesson upon the subject of this essay, which they will not soon forget.

When one man delegates to another the duty or principle of thinking for him upon any question—religious, political or economic—disaster, in some form, is very likely to be the final outcome and consequent.

And it might be of possible advantage, though hardly creditable to our intelligence as a class, for the farmers to estimate the amount of damage to the corn crop of the State the past season, that came as the result of adhering too strictly to the teaching of a theory, which theory was formulated and promulgated solely in the interest of certain manufacturers of agricultural implements.

Not that shallow culture is altogether a delusion and a snare. It has its advantages on certain soils, and in certain seasons, even when adhered to, to the exclusion of deep culture. And on all soils, and in all seasons it has certain advantages claimed for it up to a certain stage in the growth of the crop. But when that stage is reached, each farmer must decide for himself which system—the new or the old—is best for him; is the one to give the best and most certain crop of corn for the ground and the season. If, for instance, early in August or earlier, he finds his corn late—say ten days, or in such a state that the prospect for its being ripe by the 10th of September is not fully assured, he should at once abandon the shallow culture and substitute the old practice of hilling up. And if his land is strong and heavy, and the season, like the last one, rather cold, the greater is the necessity for the hilling system.

Let him bear in mind that corn, unlike wheat and oats, has a tropical quality that demands heat in abundance, and he will see the advantage, especially in such a season as the last, of hill over shallow culture.

Illustration of the above I will cite my own experience with corn the past season. It was evident by the time August came in, and even before, that everything must be done that could be done to forward its ripening, or the crop would probably be a failure. I got out my old tools—the old fashioned shovel plow with wings on the sides—and I had my corn thoroughly hilled up, by running this tool in the middle of the row, and to a good depth both ways. This gave the land drainage, let in the sunshine, and hastened the ripening at least ten days to two weeks. The result was that when the frost came my corn was ripe, while thousands of acres, all over the State, on the same kind of soil, but kept flat the whole season, was caught by the frost, and greatly damaged where not entirely ruined.

Those farmers who planted the early varieties enjoyed, of course, a comparative immunity from loss, while the later kinds suffered the most, often to the extent of almost entire loss.

Some may claim that my variety, being early, would have ripened in any event. But in proof of the negative I would say: Farmers all about me, growing my corn, lost from a fourth to a half of their crop; the only apparent advantage mine enjoyed being in the late cultivation, as above.

LITTLE PRINCE RONDS.

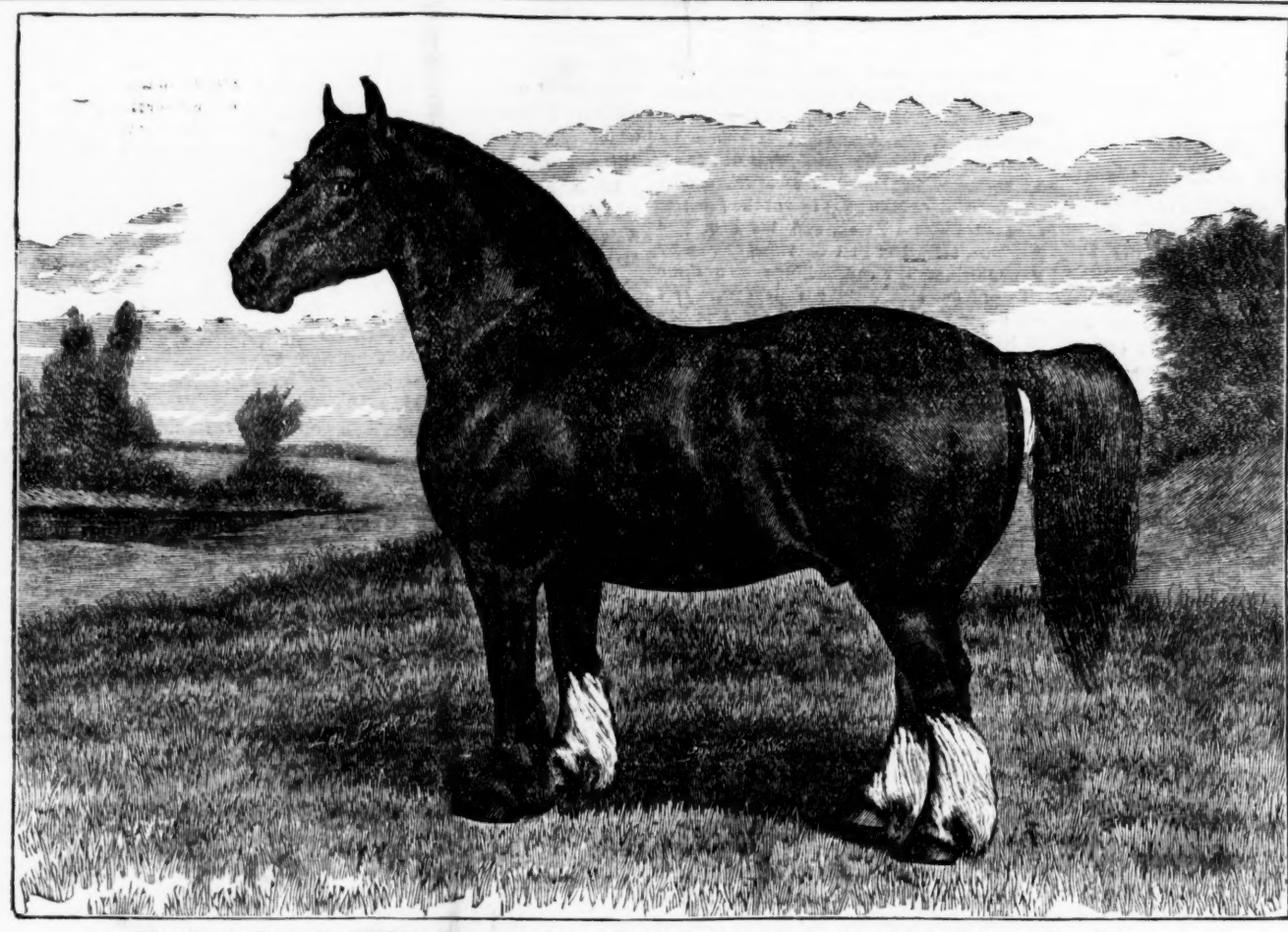
MOULTON RESULT (5228).

Imported by George E. Brown, of Aurora, Kane County, Ill.

The illustration presented this week is that of the English Shire stallion Moulton Result (5228), imported and owned by Mr. George E. Brown, of Aurora, Ill., a gentleman who has spent the greater part of a life-time breeding, importing and perfecting the Shire and Cleveland Bay breeds of horses in this country. Moulton Result (5228) is a very choice bred horse, being rich in the blood (so highly prized), of Honest Tom (1105) and Tamper (2123). Aside from his rich breeding Moulton Result has already proven himself a sire of great merit, being the sire of the prize-winning yearling at the R. A. S. in England last year. Mr. Brown bought this horse as a two-year-old, and left him in England on the stand for two years, bringing him to this country with his last summer's importation. Since his arrival here Mr. Brown has had several flattering offers for this horse to return him to his native country, but believing that nothing is too good for his customers, Mr. Brown has refused these offers, and still retains him at his stables in Aurora.

This horse has great action, the best of bone and feet, and is one of those pleasing, good horses that cannot but prove one of the greatest sires ever imported—a horse well fitted from his breeding and individual excellence to fully sustain the reputation of this noted brood wherever his future lot may be cast. Mr. Brown has one of the largest collections of first-class Shires and Cleveland Bays to be found in any stable in the United States.

Ox of the finest bulls ever marketed in Detroit was among the receipts at King's Yards on Thursday last. It was a pure Shorthorn from the herd of N. B. Hayes, of Muir, and was a perfect model in form. As the drovers remarked, "he was as fine as silk." His weight was 2,800 pounds and he brought \$340 per hundred, a pretty good price for a bull, as cattle are selling.



Moulton Result (5228), Imported by Geo. E. Brown, of Aurora, Kane Co., Ill.

FARMERS' INSTITUTES.

For many years past the Agricultural College has held six Farmers' Institutes each winter in various parts of the State. This winter twelve have been held, if we include one in Lansing wherein several of the professors participated. In most instances this winter they were begun in the afternoon and continued, with intermissions till the evening session of the next day. Especial pains have been taken this winter to hold a series of three or four institutes on the same week in adjacent counties and easy of access by railroad. This economizes expense and the time of the professors. The time for holding four a week makes it necessary for the institutes to overlap each other. Beginning Feb. 2d, one series was held in Howell, Harrington, Whitehall and Shelby. On the next week they were held at Mount Pleasant, Evart and Cadillac, and during last week at Pontiac, Imlay City, Cass City and Bad Axe. Not all the professors attended every institute, and some attended none. President Clute spoke in regard to "Agricultural Education;" Prof. Cook on "Injurious Insects," and "The Silo;" Dr. Beal on "Grasses and Clover," and "Laws of Fruits;" Prof. Grange on the "Horse for the Farmer to Raise;" Prof. Taft on "Diseases of Stone Fruit and Pomology;" Prof. Davenport on "Dairying," "Making Maple Syrup," and "Agricultural Science."

On the last evening of each institute, lantern views of the College grounds, buildings and stock were shown. Without exception, the institutes were a pronounced success; much interest was manifested as shown by the attendance and the able discussion of many questions of practical importance. Excepting on two or three evenings, when the roads were very bad, the rooms were well filled.

In nearly every instance the citizens of the several counties elected officers and determined to hold institutes next winter.

Within the past ten years or more the frequent attendance at grange and club has so improved the farmers that any number of them in almost any neighborhood can be found who can present able papers and take part in the discussions with credit and satisfaction to themselves and others who are present. Intellectually our best farmers are continually improving.

For a Creamery House.

CHARLOTTE, March 4, 1890.

To the Editor of the Michigan Farmer.

I wish to build a creamery house and do not know whether to fill the space in studding with saw-dust or leave a dead air space. Can you advise as to building a house of this size, 8x12; coolness and cleanliness being the points sought for, and of course cheapness.

A SUBSCRIBER.

National Merino Sheep Register Association.

To the Editor of the Michigan Farmer.

As I am frequently asked when Vol. III. of the National Merino Sheep Register will be published, I want to say to the members, through your paper, that there are sufficient funds now due the Association to publish it, if the money was paid over into the treasury; and if promptly done, the work will be begun at once and prosecuted to completion with all possible dispatch. There are now seven new applications for membership pending.

Respectfully,
R. O. LOGAN, Secretary.

THE PROPOSED CHANGES IN THE TARIFF ON WOOL.

The communication from Hon. John T. Rich, President of the Michigan Merino Sheep Breeders' Association, is one which will be read with interest by wool-growers generally. Mr. Rich is a wool-grower himself, well posted in legislation connected with that interest, and entirely capable of judging of the merits of the agreement arrived at between the representatives of the wool-growers and the woolen and carpet manufacturers. It is "plainly true" that the tariff of '67, under which wool-growers were so prosperous, was the result of an agreement arrived at by discussion and mutual concession on the part of those representing the two interests, and we feel satisfied that if the points agreed upon at Washington are enacted into a law, wool-growers will have as safe and stable an enactment for the protection of their industry as can be devised under present conditions. The change in wool-growing and manufacturing would render the tariff law of '67 nugatory were it again enacted, as the frauds which have rendered the present law nearly a nullity, because of dishonest officials, would afford no protection against them, and wool-growers and manufacturers alike be powerless to prevent them. If the law is so framed as to prevent fraudulent importations of wools and wooleens, we believe the rate of duty will be found sufficiently high to give American wool-growers practical control of their own markets until prices abroad decline so low as to enable foreign wools to pay the duty and undersell domestic. That time may never come, for there is a limit to everything, and when prices abroad are low enough for that the production of wool will be apt to fall off rather than increase. Under all the circumstances, considering the diverse interests which had to be brought to practical unanimity, we think the representatives of the wool-growers did all that was in their power, and acted in a manner which will receive the endorsement of their constituents. We hope Congress will, in its tariff changes, follow the line of the agreement just arrived at, and put the wool-growing and manufacturing interests on a firm and stable foundation.

Oakland County Wool-Growers' and Sheep Breeders' Association.

The eleventh annual meeting of the Oakland County Wool-Growers' and Sheep Breeders' Association was held in Milford on March 1st, 1890, with a good attendance. The meeting was called to order by President Hubbell, who made a short address. He said that he felt quite encouraged in the sheep business, and that the fine wools were the sheep for the present, and also for the future, and that they had, from his observation and experience, been the most profitable stock to the farmer in the last 40 years. He then gave his opinion regarding the style of a fine wool sheep that we ought to breed for. He thought a larger carcass, without wrinkles but with folds, would be the sheep to look for. This point was well canvassed. Some thought that it would not pay them to sacrifice the sheep they had been working and aiming for, for the larger plain sheep to suit the western markets. Some said they had been aiming to get a dense fleece and should continue to do so, as they could not sell a sheep without the purchaser inquiring how much it sheared. After the discussion closed it was decided to hold a sheep show and shearing on the 15th of April next, at a place which will be mentioned later. The officers elected were as follows: President, E. A. Hubbell, Highland; Vice President, J. A. Hamber, Highland; Secretary, P. C. Diehl, Milford; Treasurer, A. Diehl, Milford; Directors for three years, O. Sample and C. Potts.

PREMIUM CORN CROPS.

Mr. A. G. Gully, of South Haven, Secretary of the Van Buren County Agricultural Society, publishes the following report:

At the Fair, last fall, two five acre fields of corn were entered for premium, one by A. S. Packard, of Covert, and one by T. A. Bixby, of Casco. The following is the report of the crops made to the winter meeting of the society, and the award of the committee appointed there. Mr. Packard's corn was grown on sand loam with no special preparation made for the crop. Variety, Bestwick Dent, planted May 10th, three feet, ten inches each way. Owing to wet weather but little cultivation was done till the last of June, then it was cultivated seven times, once each week, and hilled once. On September 13th, and hilled in October. One acre was not well drained and the crop on that portion not over a fourth of the average of the rest. The crop was 312 bushels of hard corn.

Mr. Bixby's crop was grown on sod land which was manured nearly all over, then plowed in December, 1888, then in the spring worked both ways with a disc harrow and one way with a spring tooth. Variety, Hathaway Dent; planted May 15, four feet each way. Cultivated four times each way and nearly all was cut before the first frost. Crop, 341 bushels of 70 lbs. each, and about 60 bushels of poor or soft corn not weighed.

The committee appointed by the society, consisting of J. S. Hicks, F. W. Huribut and W. H. Halleck, after examining the report of the crops and that of Rev. Chas. Johnson, who inspected the crops in the field, awarded the first premium to T. A. Bixby and the second to A. S. Packard.

Red Polled Cattle.

To the Editor of the Michigan Farmer.

I noticed in the FARMER an inquiry for Red Polled cattle. If your correspondent will purchase some good sized Devons and cut off their horns he will have some Red Polleds that will answer every purpose except for registration.

HURON.

Black Tartar Oats.

I see Black Tartar oats can be had at Memphis. I wish to send for some, and want to know if it is Memphis, this State, or Memphis, Tenn.

O. S.

It is Memphis, Macon Co., Michigan. We always give the State if it is a place outside of Michigan.

MR. JOHN P. SANBORN, of Port Huron, sends us a catalogue of his herd of Shorthorns, just issued, which is not up in elegant shape, well printed and neatly arranged. The breeding of the various animals catalogued is set forth very fully, with copious notes. The herd is a notable one, as it only comprises two families—Victoria Duchess and Mazurkas—principally the former. These Victorias trace to No. 1 of the Mason sale, and keep up the reputation of their early ancestors for usefulness and merit. There is not a family of Shorthorns whose members generally combine the qualities of milk and beef to a greater degree than the Victorias, and Mr. Sanborn's herd contains some of the very finest specimens of the family.

COL. MANN sold the horses advertised by A. G. Dewey, on the 5th, at Pontiac. The eight head of horses and colts brought \$3,490, an average of \$311. They were all trotting bred but not standard. Alda W., a mare by Mambrino Gift, brought \$510. She went to Messrs. Sutherland & Benjamin, of Saginaw, owners of Sphinx. Col. Mann reports more entries for his combination sale at Lansing, including some good ones. He is feeling well over the prospects of a good sale.

SHIawassee County Farmers' Institute.

For the Michigan Farmer.

The Shiawassee County Farmers' Institute held at Perry, on Wednesday, Feb. 19th, was a grand success.

In spite of the roughness of the roads as the time for the opening of the morning session, approached, the church began to fill, and promptly at 10:00 A. M. the President, N. K. Potter, called the meeting to order, and the chaplain, Rev. Geo. T. Curtis, invoked the blessing of God on the Association.

The Vernon quartette furnished most excellent music for the morning and afternoon sessions and the Perry School Choir entertained the evening session in a very satisfactory manner.

In his address of welcome Mr. M. L. Stevens discussed the blessings which the farmer enjoyed in our different organizations, and the fact of a farmer governor, and expressed the hope that he would be our next United States senator from Michigan. No man would more ably represent the farmer's calling and defend the farmer's interests in Congress.

Rev. J. W. Kennedy in his response stated that agriculture lay at the basis of all national prosperity. He differed in his political belief from Gov. Luce, and yet he thought the governor beloved by the people, not for political ideas, but from the fact of his sterling worth as a man, and that his actions were based upon his sense of right without regard to the personal consequence of those acts.

President N. K. Potter, in his address said he believed that any farmer or farmer's wife with a little grit and some ambition could take an influential place in the community. Women should have a place in this association, and they had not been forgotten, as their attendance and the part they afterward took in this association well proved. There were about two boys growing up on every farm who should be kept on that farm; we should cut the farm into smaller pieces for the boys. This whole-sale farming should give place to better cultivation on a smaller scale. It is a mistake that boys leave the farm to be employed as clerks. He gave an example of the 1,200 clerks employed by Marshall Field & Co., Chicago, from boys to those grown grey in service. They were tired-looking, working under the tap of the hammer. They knew nothing but the round of their business; behind a few feet of counter year after year, they sold spoils of thread or measured cotton. It would sicken any enterprising farmer boy of city life. Good reading matter and plenty of it should be provided in the home. Something besides agricultural and religious papers should be there. If there are two rooms in the house light them both and give the boys and girls one of them. Let them invite friends, not occasionally, but often. We should control ourselves. It is the larger part of controlling children. Teach children to be generous, and impress upon them the importance of living for the good they may do to others. Cultivate in them a love for music, it will bring sunshine and gladness to every home.

A recitation entitled "The Convict Boy's Story," by Will Carleton, was very effectively rendered by Miss Bessie McQueen, of Perry.

Among the questions discussed in the forenoon were: 1st—Do we make ourselves slaves to our children? Mr. Wheelan said we were not slaves to our children, but they were not slaves to our care. If slaves, then willing slaves to those whom God has given us to love, to guide and direct in childhood that they may take our places in future years.

2nd—How far should the parent let a financial interest influence him in making home cheerful? Much depends upon circumstances. Any father or mother can afford some good books and good papers. A lavish expenditure of money does not make a happy home. The child should be the companion of his father and mother. They should give time to interest him, and by studying the child direct his inclinations, his fancies and his activities in the right direction. All this will take time from the parent, but luxury does not mean contentment.

Mr. E. L. Lyman, in speaking of reading for the young, said that the only way he had been able to get his boy to read the Bible was by purchasing Josephus. We may use ingenuity in cultivating the tastes of our children.

The question of the dairy experiments at the Agricultural College was discussed. After dinner and music a paper was presented by Perry G. Holden on the "Field Experiments" to be carried on at the Agricultural College. These permanent plot experiments are for the purpose of comparing different systems of rotation and different systems of manuring, to note the effect upon the soil, the effect upon the crop and the effect upon the drainage water. He deplored the fact that farmers did not give more care and attention to the selection of the best varieties of seed, and the best seed of that variety. Experiments in this line will be carried on. Testing varieties of potatoes, corn, oats and wheat will be continued.

Gov. Luce then spoke for an hour and a half on "Some of the Needs of the American Farmer." All wealth comes from three sources, 1st, the earth; 2nd, physical labor; 3rd, brain power. The farmer possesses the first and second, and to succeed he must possess and use this strongest and most powerful third element. He was distressed to see English capital invested in American wealth. The strongest and most powerful machine invented is that of organization, co-operation, and concentration. It may be used for good or evil. Farmers must give more time to culture and improvement, and act more intelligently. Trusts were discussed at length. The most prosperous years the farmers have had were from 1879 to 1885, as shown by a scale of prices of those years compared with later years.

A permanent organization was formed and constitution adopted; N. K. Potter, Baneroff, President, and C. H. Stevens, Perry, Secretary.

Evening session opened with question box. Paper by C. H. Stevens on "Means of Improvement," made the point that there never was a time when the farmer had so many means of improvement. The farmer's paper keeps him informed upon the latest thoughts and opinions of the time on agricultural subjects. They expose frauds on the public. They give an exchange of ideas and an impulse to the farmer's calling.

Prof. H. J. McEwan on "Home Reading for the Young." Why should we read? To get the thoughts of others; to inform ourselves. How shall we read? Systematically, attentively and to receive a blessing.

Mrs. Mayo spoke on co-operation from a woman's standpoint. We should raise to a higher standard the farmer and the farmer's wife. True success in life is not measured by dollars and cents, but by the intellectual culture we attain, and by the good we do. No man or woman has a right to neglect the culture of the mind. There must be a necessity felt for improvement and an object in living. The upbuilding of humanity is a greater success than the amassing of wealth. In the face of these things that are wrong we must co-operate. But what can I do as asked by each one. Individually you can make one life pure. Co-operatively you can make a community pure. Our hope of the future is in the rising generation, we must make them strong men and women.

E. A. BURNETT, Secretary.

THE LIBERTY FARMERS' CLUB.

The March meeting of the Liberty Farmers' Club was held at "Highland Home," the residence of Mr. and Mrs. G. G. Pond and son, on Saturday, the 1st inst. The spacious house was filled with members and visitors.

Mrs. R. C. Cary read an original essay entitled "Home." She said no word in the language approaches in sweetness of sound, this group of letters. Out of it rush memories and emotions always pure and noble. How independent of money peace of conscience is, and how much happiness can be condensed in the humblest home! A cottage may not hold the furniture and accommodations of a mansion, but if love be there, it will hold as much happiness as a palace. To be happy at home is the ultimate result of all ambition—the end to which enterprise and labor tends. Do not see why the farmer's home should not be happy. He ought to make it attractive for wife and children, as well as the homes in the city. It is not necessary to buy costly and stylish furniture, yet I say let us have our homes as stylish and neatly furnished as our means will allow. Let us not think because books are dear we cannot afford them. We must educate our children. A lady or gentleman who cannot converse on almost any subject of today, is not considered smart. We as fathers and mothers should not only keep our children supplied with wholesome literature, but ourselves well informed also. We must take the time, if we leave some of our house-

(Continued on Eighth Page.)

Apiarian.

MR. LANNIN ON PEARS.

Mr. Joseph Lannin, of South Haven, recently attended a meeting of the Berrien County Horticultural Society, and the topic under discussion being pear culture, on which he is authority, was called upon for his views. Mr. Lannin, as reported in the *Berrien Harbor Palladium*, said:

Pear orchards are unlike all others, except the apple, for we have to wait so long for the fruit. Some 30 or 35 varieties of pears have been tested in this State with varying results. The questions to consider in choosing varieties are: "Are they palatable?" "Are they productive?" "Are they subject to blight?" He thought all trees alike subject to blight. The idea that some varieties are easily blighted while others are exempt is all a matter of speculation; on this question need not trouble any one. The varieties that bring the best price are not always the best in quality. Fruit growers should propagate only such varieties as are large and of good flavor and should strive to educate the people's taste up to the best in quality, so that they will not buy on appearance alone.

Mr. Lannin spoke briefly of a number of varieties that he would not recommend. In some the color and size were bad, in others the trees were poor growers, and in others the fruit was too soft to ship; but the main objection to all was that they were third or fourth class in quality. The Bartlett even is not first-class. The Goodale is a fine large pear, much like the Bartlett in size, color and shape, and ripens two or three weeks after the Bartlett, just lapping on to that pear in the market, making a profitable pear to raise. The tree is a large, beautiful one. The Flemish Beauty is a good pear, but is inclined to bear only every other year. The remedy for this in all varieties is to cut away part of the tree every year by pruning. He thought this would explain why the fruit on Mr. Kinsley's grafted trees was finer than on the ungrafted ones. The Flemish Beauty should be pruned severely. It is reasonable to suppose that half the top having the whole root must result in much finer fruit. Growers should certainly plant the Sheldon. It is a large pear and colors up nicely for market. Not a regular bearer, however. The Lawrence is nearly medium in size and is shaped much like the new pear, the Wilder. In flavor it is nearly as good as the Sheldon, and will sell at its merits.

The Belle Lucrative is a first-class pear. It comes into market just as the Bartlett is going out; is very delicious and of fine color if not picked too early. The Buere d'Anjou is a large showy variety, but the trees must be carefully attended or they will bear too heavily. The Mt. Vernon is a variety that every grower should certainly have. It is a very late pear, one that can be barreled, and will keep until March. It is as good as the Seckel in flavor and is very profitable to the grower as it has no competition in the market. The trees are good bearers. The Bosc is an excellent variety, the trees beginning to bear young. The speaker said that if he were to plant a new orchard of 650 trees he would select as follows: Clapp's Favorite, 50; Bartlett, 200; Belle Lucrative, 50; Sheldon, 100; Bosc, 100; Buere d'Anjou, 50; Mt. Vernon, 50; Lawrence, 50.

Some of the varieties do well as dwarfed, but the Bosc must be double worked as it does not affiliate with the quince.

The Grand River Valley Horticultural Society.

About 100 persons attended the February meeting of this Society. From the report of the *Grand Rapids Democrat* we make the following extract:

The large table in the center of the room was filled with apples, Baldwins, Wagons, Russels, and Grimes' Golden. Several branches of blackberries and peaches were exhibited, showing the effect upon them of the open winter.

After some discussion on apples as to which are the most profitable varieties to raise, in which much difference of opinion was expressed, H. L. Freeman said that he had an orchard seventeen years old and had never failed in a single crop. One year he gathered 1,200 bushels from one and one-half acres of orchard. His orchard is planted on a clay loam.

The following report was made by W. N. Cook:

"Your committee was appointed about one year ago to consider the question, 'Does it pay to raise apples of the best quality?' This question was asked at a meeting of the Society, at which time Mr. Garfield brought to the attention of those present the fact that our market is supplied with southern fruit almost to the exclusion of our own better fruit (especially apples) in the winter and early spring months. The thought was that proper selection of our best sorts and proper methods of caring for and placing on the market ought to reverse this condition. Southern fruits are desert fruits and come into competition simply with such of our own fruits as are fit for dessert use.

"Your committee are of the unanimous opinion that none but the very best of our late keepers should be recommended by our Society, and as indicated the committee notes the following varieties as best: First, Jonathan; fourth, R. L. Greening; fifth, King. Of the newer sorts Shawnee Beauty and Grimes' Golden; of sweet apples, Taiman, Bailey, Green Sweet. The Baldwin is not included in the list because it is inferior as a dessert fruit and the tree is tender, not able to stand the cold as the other sorts."

This report caused a long and fruitful discussion, during which practical orchardists gave their opinions founded on experience and long study of results.

Mr. Wilde was much in favor of the Grimes' Golden on account of its cooking qualities and rich color. The Wagner, he said, was good for a man that wanted nearly nothing in an apple. The great fault of the Jonathan seemed to be its small size, but J. L. Fuller said the hotel keepers and others who wish a dessert apple do not want a large sized apple. He liked the Jonathan. S. S. Bailey loves the Shawnee Beauty, and a large majority of those present were of the same opinion. Mr. Garfield asked why this variety had not been pushed to the front if it is such a fine apple. W. J. Waterson, a nurseryman of Cascade, said that he burned up 300 trees of this variety last year because he could not find buyers for them.

To comply with a request of Prof. Taft the list of apples was raised to twelve varieties, and the Hubbardston, Roxbury Russett, the

Baldwin and the Green Sweet were added. There was considerable discussion on the Baldwin. Mr. Wilde said that those who had clay ridges for the Baldwin would plant them, no matter if the Society did condemn it. Mr. Fuller said it was the meanest apple out of jail, and the only reason that men bought it was because it looked well, not because it was a good flavored apple. But little seemed to be known about the Green Sweet, but those who knew it were enthusiastic in its praise.

Next followed the discussion of pears and the following were voted to be the best for growing in this locality: Flemish Beauty, Bartlett, Anjou, Clapp, Dacness and Sheldon. In the discussion of peaches the Alexander, Waterloo, Hale's Early, Lewis' Seedling, Snow's Orange, Early Crawford, Stump and Hill's Chilli. W. N. Cook recommended the following sorts of cherries: Early Warren, Yellow Duchess. In grapes H. H. Hayes named Moore's Early, Niagara, Worden, Brighton, Delaware, Salem, Agawam.

The Crescent, Sharpless, Jessie and Minnie were the strawberries recommended by Thomas Wilde. Henry Smith named the Taylor and Snyder blackberries for this section of the country. Mr. Wilde gave the names of the Catbert Red, Black Ohio and Grey raspberries.

The next meeting will be held at Grandville, the fourth Tuesday in March.

Seed Tests in European Countries.

G. McCarthy, botanist of the N. C. Experiment Station, mentions in the *Rural New Yorker* the superior quality of the European seeds. He says:

Within the last 10 years the quality of the seeds offered in the European markets has greatly improved, and now in that region there is no difficulty in procuring seed guaranteed to be both free from noxious weed seeds and of a specified percentage of vitality. This improvement has been brought about by the system of seed testing and control inaugurated in Germany in 1878. Switzerland, Italy and France have seed-control stations, and in England the botanist of the Royal Agricultural Society tests seeds for members. England has also a stringent law against the sale of adulterated and "doctored" seeds. The best known of European seed-control stations is the National Swiss Station at Zurich. So great is the reputation of this station and such is the protection its work affords to reputable seedsmen, that many seedsmen in England, Germany and other countries send their seeds to Zurich to be tested, and on the station test such seedsmen guarantee their seeds to be of a specified degree of purity and vitality. The following form of guarantee is given by a large English seed association and is in effect similar to that given by all guarantee houses.

"1. Our seeds are guaranteed pure and clean and of the percentage of vitality named in our catalogue.

"2. This guarantee is subject to the analysis of the botanist of the Royal Agricultural Society. If the results of the analysis do not confirm the guarantee, the association will take back the seeds and refund the money paid for them and pay the cost of carriage both ways.

"3. Seeds once sown, the responsibility of the association ceases. The result depends upon so many things besides the quality of the seeds, that the grower cannot be guaranteed."

Under the above system of guarantee the careful farmer need never before his land with weed seeds. The supposedly "smart" and very much advanced American farmer has not yet secured the advantages of the guarantee system. The necessity of such a system is quite as urgent in this country as in Europe. American seedsmen are not specially noted for conscientiousness, or for ignorance of "tricks that are vain." The age we live in is peculiarly the age of adulteration and commercial greed. Scarcely any article of consumption capable of adulteration is sold pure in markets unsubjected to control. We should judge, then, that in the case of seeds such impositions upon the consumer as the case permits would be practised by retailers, and such investigations as have been made seem to confirm this opinion.

Danger of Importing Yellow.

In the *Gazette* of February 15, at a meeting of the Berrien County Society, Mr. Handy is represented as expressing the opinion that the pits of peach trees planted with yellow will not grow when planted. That this will be found true of pits from trees in the advanced state of the disease is doubtless true, since examination betrays the fact that such are almost invariably entirely without germ, while even those which exist are nearly or quite abortive, therefore lack even the qualities indispensable to the development of healthy growth.

As an illustration, we several years since planted the pits of an apparently healthy tree. The most of these grew to be decidedly unhealthy seedlings. The cause of this was a mystery, till the usual season for the development of yellows arrived, when the unmistakable indications of yellows appeared in abundance, upon the parent tree, which during the next year succumbed wholly to the disease and was in consequence removed.

It is not generally, if ever, true that this disease thoroughly permeates a large tree, in this case, during the first year of its infection. Hence there is abundant occasion for the assumption that, in this case, the contagion must have been communicated as early as the year prior to the growth of the diseased pits spoken of, with the probability that the pits of that previous season had all been infected, and, if planted, would have produced seedlings too slightly diseased to have attracted attention during their first year, and especially if budded and cut back the following spring might, quite possibly, have held the disease in abeyance till developed in the more trying process of fruiting.

There remains yet another possible mode of introducing this disease, to explain which we may be allowed to detail some further personal experience. Some fifteen or more years since, we imported peach trees from a locality in Ohio in which yellows was alleged to be entirely unknown. More or less of these trees were planted in the vicinity, and several of them in our own grounds. The importation comprised several varieties, all of which, save one, proved permanently healthy. This variety grew finely till midsummer, when many if not all developed the peculiar growth so characteristic of this dis-

ease, thus indicating, to our apprehension, that they had been budded from infected trees—quite possibly those which, at the time of cutting the buds, had not yet manifested the disease.—T. T. Lyon, in *Alleghen Gazette*.

Prevent Root-Parching.

Forty or fifty years ago I wondered at Kenrick's assertion, in his then "New American Orchardist," that death to half-tender trees and shrubs enters oftenest at the roots. I have since found ample reasons to justify his opinion. The drying of some part of the structure of woody plants kills in preventing movement and distribution of sap. But as the tops are exposed to all winds and all changes of air-temperatures, it would seem that they need protective aid more than the soil-covered roots do. Nature, however, provides special protection to the exposed parts. If the yearly growth has been steady and timely and is completed before severe weather sets in, the bark and buds will be finished off with an external film of waterproof varnish, which prevents escape of moisture from the interior of the structure until the warmth of spring expands the whole, and so opens the buds at their points.

The roots, on the contrary, have no such coating. They are as flannel compared to olecloth—equally ready to receive and to lose moisture and suffer irreparably from a very short exposure to dry air. Hence the necessity and the difficulty of keeping the air about them constantly humid while they are being carried from the nursery-ground to where they are planted for permanence. Trees that make roots near the surface often suffer irreparable injury from the parching of the surface soil in the hot drouths of July and August. Quinces, raspberries and grapevines often perish from this cause. They need much at that time and through the winter, but from March to July it is better away, as it invites surface-rooting. When the snow drifts away from over the roots of a shallow-rooting evergreen, and hard freezing follows, the roots are congealed near the collar, so that sap cannot pass. The leaves dry and become reddish brown, and the tree never recovers.—W. G. Waring, Sr., in *N. Y. Tribune*.

Early Tomatoes for Family Use.

Nearly every family can have a few extra early plants for tomatoes before the general crop is ripe. Select a dozen or so of small flower pots, fill them with rich earth mixed with a small quantity of sand. Make a box that will hold these pots snugly, and project slightly above them. Fill the crevices between the pots with sand and keep this moist. Plant a few seeds in each pot and place the box in a warm window. When there are bright warm days set the box with a pane of glass over it in a sunny position.

It will be necessary to watch that it does not become too warm under the glass, and the heat can be regulated by raising one end of the glass. They will make substantial growth, and should be thinned to one in each pot. This method will be satisfactory when but few plants are needed. As the plants become of considerable size, larger pots may be necessary. When the ground becomes warm the hills should be prepared with rich earth into which the contents of the pots are placed. The seed should be sown in February.—*Popular Gardening*.

A Trustworthy Guide for the Gardener.

Of the numerous seed catalogues published none is more thoroughly trustworthy than Burpee's Farm Annual, issued for gratuitous distribution by W. Atlee Burpee & Co., the well known Philadelphia seedsmen. The new edition for 1890 is brighter and better than any preceding; it is handsomely bound in lithographed cover representing new flowers from nature and views of portions of their Fordingham Seed Farm. It is fully illustrated with hundreds of engravings from nature and colored plates of valuable new vegetables, including Burpee's Bush Lima Bean, remarkable as the first and only perfect dwarf form of the luscious large Lima Bean.

W. Atlee Burpee & Co. annually test for purity and merit, as well as vitality, all the seeds they sell—their field trials alone at Fordingham Farm the past season numbering four thousand four hundred and eighty-three (4,483) separate samples. The exceptional care given to the growth and testing of all seeds by this house has established for it an enviable reputation throughout the world, and their Farm Annual for 1890, which is mailed free on application, will be found in every respect a thoroughly trustworthy guide for the farm and garden.

FLORICULTURAL.

The domestic or common lilac of the garden is the most profitable to the florist of all the lilacs forced. If he can procure large overgrown bushes that have remained undisturbed for eight or ten years, these will serve him generously, yielding very readily to the forcing treatment, giving long stems and usually plenty of foliage and flowers. Lilacs may be pure white by growing them in a perfectly dark house. A new Rochelle grower has blue-glass lilacs which, all the shades from white to deep purple are brought out in lilacs by management.

Of the petunia, a writer in the *Horticultural Times* says: I must confess to a little weakness for this beautiful bedding plant. In light soils it is extremely valuable, and the hotter the summer the better it is suited. By sowing the seed early in March in a little heat, the seeds soon germinate, the after treatment being to plant or pot-off as they become large enough, gradually hardening off, and planting out in rich soil at the end of May or early in June, according to weather. Some peg the growths down to the bed during the summer, which I think spoils the effect. In my opinion nothing is much more attractive than a good bed of petunias, allowed to grow pretty much as they like. They may be purchased in separate colors or in mixed packets, the latter, as a rule, being the best, unless distinct colors are desired. The single are by far the best for outdoor work, being freer bloomers, and more able to support their flowers than the double varieties.

PETER HENDERSON says the best way to start pansy seeds, or in fact any flower seeds, is in shallow boxes rather than in pots. Fill such a box with ordinary rich soil, such as is used for almost any kind of house plant. The surface is made perfectly smooth and level before the seeds are sown, then the

seed is pressed gently down with a smooth board, so as to merely sink it into the soil; over the seed is sifted through a piece of mosquito netting, just enough soil to hide the seed, again press gently down with a smooth board and the sowing is completed. Now, place the box in the light, water gently with tepid water, so as not to disturb the soil, and in about three weeks, if kept in an average temperature of 65°, you will have a stand of young plants which in three weeks more will be ready to transplant into another box, from which, as soon as the plants begin to crowd each other, they must be transplanted into pots or into the open ground. When it is not convenient to give pansies the house culture just described, the seeds can be sown in the open ground as soon as it is dry enough to work in spring. They should be sown exactly as described in the boxes—pressing down the seeds, then slightly covering up, and pressing down again, but they had better always be sown in rows, and when they come up and are about an inch or so in height, they can be transplanted at a distance of one foot apart, and if the soil is rich and the season at all favorable, we may expect continuous bloom throughout the entire season.

The French Aster is one of the finest of late summer blooming plants. The white, pink and lavender are especially soft and exquisite in coloring. Seed should be sown in early April in shallow boxes with many holes bored through the bottom, over which a lining of moss should be laid. On this silt, wet garden soil; strike off level with the top of the box, sow the seed evenly and cover with about one-fourth inch of very wet silt earth. Place in a south window in a warm room. Do not over-water; at the same time the seeds should not be allowed to become dry, for being once swollen and then permitted to dry off they are ruined and will not sprout. This drying-up process is doubtless the cause of the failure of so many flower seeds sown in the open ground, the fault being usually charged to the poor quality of the seeds and not to the ignorance of the grower. When three leaves appear on the young seedlings, they should be taken from the box and transplanted into a hot-bed, made on the top of a pile of old leaves mixed with fresh stable manure. The glass should not be more than six inches above the earth. A cold frame without bottom heat protected at night with a covering of thin sheeting will answer the purpose if started late in April. To this transplant the young seedlings, say two inches apart in rows with three inches space between the rows. About June 1, when danger from frosts are over, remove the beds or borders, giving each plant one foot growing space, the several colors separately or mixed as you may prefer. If care is taken to place the plants in rows with even distances, the bed will present a pleasing appearance while in foliage before the blossoms appear. The best time for transplanting to the open border is just before a heavy rain; when this is done, new set plants require no protection from the sun.

Horticultural Items.

One hundred thousand young shade trees are to be sent from Canadian experiment Stations to farmers in the Northwest for spring planting.

If you think you'll raise a few gooseberries, try the American varieties, like Downing and Champion. The English sorts do not succeed well in this country.

CANADIAN fruit-growers in session at Ottawa in February, decided not to ask for the reimposition of duties on fruits imported into the Dominion from the United States, but to wait another year and see the results of the year's trade.

FIFTEEN thousand acres of tomatoes are grown in New Jersey annually, and are worth a round million of dollars to the farmers of that State. There are 78 canneries, and the lowest price for tomatoes furnished them is \$5.50 per ton.

G. L. Dow thinks the Crescent strawberry will be superseded by the Haverland, which bears it every way. Bubach No. 5 he calls the King berry, "an immense producer of tremendous berries," and Pearl he thinks would be a nice kind to plant to fertilize Bubach.

MINNESOTA has passed an act to prevent the practice of fraud by tree peddlers in the sale of nursery stock. Peddlers from other States before being allowed to sell must file an affidavit with the Secretary of State of Minnesota that they are all right, and enter into \$2,500 bonds to the same effect.

The Country Gentleman tells of a man who bought a farm of 127 acres for \$5,000, going in debt for every cent of it and having a working capital of but \$700. Though he had no knowledge of farming, having been a carpenter, in four years he has paid interest, taxes, and \$8,000 on the mortgage, and has largely increased his stock, and also implements. Grass doesn't grow under his feet, and he wastes no time "going down town." But it is his energy and business capacity which have been the principal factors in his success.

The Western Reserve in Ohio is the best sugar region of Ohio. Taking one thing with another the Western Reserve people have the sugar business in better shape than any other people in the country, for they have learned how to cultivate and improve the sugar bushes. New trees are planted as fast as the old ones die. Care is taken in planting these trees to place them so they will produce the most and the best quality of sap, and when the sap is obtained it is boiled in an apparatus especially well designed to produce clean and pure sugar.

PRESIDENT J. M. SMITH, of the Wisconsin Horticultural Society, says, respecting the influence of location on varieties of the apple: "We must remember that there is no variety of apples acknowledged merit that is its best over any large part of our territory. The celebrated Newtown Pippin, which is probably the best late winter apple in the world, has never been at its best anywhere west of the Allegheny Mountains, and only in limited districts in the New England States and in portions of New York and Northern New Jersey. Even in the limited districts of that small portion of our country, it requires the best of cultivation and the most careful attention or it will not yield the grower satisfactory returns for his labor.

Distress after eating and other dyspeptic symptoms are cured by Hood's Sarsaparilla.

Horticultural.

Building up Colonies for the Honey Harvest.

G. M. Doolittle, of Borodino, N. Y., presented a paper on the above subject to the State Beekeepers' convention at Lansing, which was read by the Secretary, in which he said:

In 1876 and 1877, Mr. J. H. Townly, of Jackson, Mich., pressed upon the beekeepers of the land the necessity of keeping bees warm as soon as out of winter quarters, by means of some extra protection on the outside of single-walled hives, if we would have our bees build up so as to take advantage of the first honey-flow, recommending that the hives be put in rough boxes somewhat larger than the hives, the space between filled with chaff or fine straw.

Ten years later, Mr. W. Z. Hutchinson, of the same State, emphasized the matter in his book, "Production of Comb Honey," and I so far agree with this proposition, viz: No beekeeper residing north of latitude 40°, can secure the best results in dollars and cents from his bees, unless he so protects them in the spring, whether wintered in the cellar or on the summer stand. Some say that the cost of so protecting them is more than the gain amounts to. What says this convention?

Prof. A. J. Cook, and others, say that in addition to all other favorable circumstances, bees must be fed, by way of stimulative feeding, at all times when they are not gathering honey, in order to build colonies up rapidly in the spring; for in proportion to the number of days that sweets are carried, so will the brood make a gain over what it would if no sweets were carried.

Without contradicting the above statement, I wish to say that the daily feeding of colonies is a task that most beekeepers do not relish, and for this reason it is to be avoided, if possible. That it may be avoided, I make this statement: Bees having a large supply of honey in their hives, will build up just as fast without any stimulative feeding, as will a colony having little or no stores, under daily feeding; and if the full combs of honey are placed on one side of a division-board, and the brood on the other, so that the bees have to carry their food around this board, they will build up faster than they will in either of the other cases. Can any one disprove it? If not, it stands a fact.

Some say that in the foregoing we have all that is necessary, and that further "fussing" is time worse than wasted; but I say that when any colony becomes strong enough to have brood in three full, a gain is to be made which will much more than pay for the time employed, by reversing the brood-nest, regardless of the style of the hive or frame used.

By reversing the brood-nest, I mean the putting of the center combs, which are full of brood, on the outside; and putting those having the least brood, that were on the outside, in the center. Now leave them until the hive is so well filled with bees that they have brood in all but the two outside combs (the center combs being filled out to the frame on all sides), when the brood is to be reversed again, putting the combs that are entirely filled with brood, out next to these outside combs, and those having the least in them, in the center. A gain of a week at least is made in this way to each hive, and this week of honey-gathering will more than pay for the necessary trouble and time. If this is not true, give us the reason why.

In these three items, we have the main points used in building up colonies, where the beekeeper desires to work all the colonies that his apiary contains. If he has more colonies than he cares for, a great gain is made by shutting up all colonies that are not up to the full standard of strength, on one-half of the combs that each hive contains, and when these combs are perfectly filled with brood, unite two of them, by putting the queen of one of them and the few bees which adhere to the sides of the hive, in the other hive, to form a nucleus. If they are given an empty comb, or one having some honey in it, and an empty frame, you will soon have a two-frame nucleus that will be a source of comfort.

The united colony will be ready for the sections at once, and when they swarm, if they do, all you have to do is to shake all the bees off the combs of brood, putting empty frames in their places, of frames or comb foundation; and carry the brood to the nucleus, thus giving you the full working force on the old stand, and two good colonies in the fall.

The half-depth chambers work very handily in using the foregoing plan, as they can be used singly until the time of uniting, and then one put on top of the other, in uniting. If no one has tried this plan, he will be astonished at the results which can be obtained.

All the foregoing is for a locality where white clover, or an early crop of honey is to be worked for. If buckwheat or fall flowers are to give the crop of honey, then the bees will build up in time, of their own accord, and the only thing the apiarist has to look after, is to see that they have plenty of stores at all times.

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